PAR16

COST OF ANKYLOSING SPONDYLITIS IN CZECH REPUBLIC—DIRECT AND INDIRECT COSTS

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OBJECTIVES: Ankylosing spondylitis (prevalence 1% of population) is a chronic inflammatory progressive disease characterised by pain, joint stiffness, and gradual loss of mobility leading to severe functional impairment. There are no cost-of-illness data available in Czech Republic or in Eastern Europe. To assess direct and indirect costs of ankylosing spondylitis we have analysed the data from a large patient cohort study. **METHODS:** Data of 1008 patients (average age 50.2 years) with ankylosing spondylitis were analysed. Patients were enrolled in a patientxs organisation survey named BÉÏA. Data on health care consumption and productivity loss were collected. For calculation of indirect cost the friction cost approach was applied. **RESULTS:** The average time from diagnosis was 23 years; 61% were male. Two thirds of patients were disabled and unable to work. The mean annual direct cost per patient is estimated at 1259 EUR (49%) and the indirect cost due to lost work capacity is 1314 EUR (51%). The major contributors to the total direct costs were physiotherapy, spa and rehabilitation clinics (67% of direct costs). Drug treatment contributed to 22% and hospital admissions to 5% of direct costs. **CONCLUSION:** The annual total direct plus indirect costs of one patient with ankylosing spondylitis in Czech Republic were 2573 EUR. The share of direct and indirect costs was almost equal. Our findings provide information on the burden of disease and a baseline for cost-effectiveness evaluation of new costly treatments.

PAR17

A SYSTEMATIC REVIEW OF THE GLOBAL COST-OF-ILLNESS OF RHEUMATOID ARTHRITIS

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OBJECTIVES: To systematically review the current literature relating to the cost-of-illness (COI) of rheumatoid arthritis (RA). **METHODS:** Medline, Embase, BIOSIS, Derwent Drug File, the Cochrane library and NHS-EED were searched on 12th March 2007. Original studies (2002-present) reporting COI data were included after a two-stage review process. Bibliographies of included studies were also searched for additional citations. Data were extracted into predefined extraction grids and were analysed using Microsoft Excel. **RESULTS:** Nine hundred and nine unique citations were retrieved. Of these, 9 studies presented COI results. These studies were conducted in 5 different countries (Australia, France, Germany, Sweden, and the US) from 2003–2007. Six studies adopted a societal perspective by including direct medical and non-medical costs and indirect costs. Patient populations across the studies ranged from only early RA (<12 months from disease onset) to all RA patients. The use of biological agents (including infliximab, etanercept, and anakinra) was assessed in only 3 of these studies. Annual direct costs ranged between €3000 and €4000 in all European countries. Lower annual direct costs were reported in the Australian analysis as a result of the inclusion of all Australian adults with RA, while substantially higher costs were found in a US study. This could be attributed to the higher costs of medications that included anti-TNF therapies. In terms of components of direct costs, medications and hospitalisations were generally the categories associated with the highest costs. Indirect costs exceeded direct costs in 5 of the 6 analyses. These ranged between 2 and 4 times the direct costs. Finally, a statistically significant positive correlation was found in most studies between total RA costs and disease severity. **CONCLUSION:** This review of recently published COI analyses found that RA is associated with significant direct and indirect costs, with the economic burden being highly dependent on the level of functional disability.

PAR18

HIDDEN COST OF RHEUMATOID ARTHRITIS: ESTIMATING COST OF COMORBID CARDIOVASCULAR DISEASE AND DEPRESSION AMONG RHEUMATOID ARTHRITIS PATIENTS

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OBJECTIVES: To examine the resource utilization and direct costs of care associated with comorbid cardiovascular disease (CVD) and depression among prevalent rheumatoid arthritis (RA) patients using retrospective health care claims data. **METHODS:** Patients ≥ 18 years of age with a diagnosis of RA January 1, 2002-December 31, 2004 were selected. The date of the first observed claim with an RA diagnosis following a one year period of health plan enrollment was the "index date." Patients had 12-month pre-index and follow-up periods. Patients were also required to have a diagnosis of RA and RA-related treatment during pre-index. Based upon pre-index utilization, patients were classified into mutually exclusive diagnosis groups: RA with comorbid depression; RA with comorbid CVD; RA with comorbid CVD and depression; RA alone. Annual utilization and costs were calculated; generalized linear models (GLM) were undertaken, controlling for demographic and clinical characteristics. Analyses focused on differences in costs among RA only vs. comorbid diagnosis groups. **RESULTS:** A total of 8916 patients had RA alone (86.6%), 608 had RA + CVD (5.9%), 716 had RA + depression (7.0%), and 58 had RA + CVD + depression (0.5%). Mean age varied by cohort group with RA + CVD tending to be older (RA + CVD: 59 years; RA + depression: 50 years; RA + CVD + depression: 53 years; RA alone: 51 years). A significantly lower proportion of patients with RA alone had a RA-related hospitalization stay during follow-up (5.4%) compared with other groups (RA + CVD: 9.4%; RA + depression: 0.001). In GLM modeling, adjusted mean < 9.2%; RA + CVD + depression: 15.5%, all p annual costs were highest for RA + CVD ($14,328) followed by RA + CVD + depression ($13,276), RA + depression ($12,270), and RA alone ($11,522). **CONCLUSION:** A significant portion of prevalent RA patients has comorbid CVD and/or depression (13.4%). Comorbid depression and cardiovascular events are associated with significant increase in not only the annual total medical costs, but there may also be associated increases in RA-related utilization.

PAR19

COMPARISON OF ORAL LEFLUNOMIDE AND METOTREXATE SC FOR THE TREATMENT OF RHEUMATOID ARTHRITIS: AN APPROACH BASED ON THE NUMBER TO TREAT

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OBJECTIVES: To compare the effectiveness of oral leflunomide (Arava®) and subcutaneous metotrexate (Metoject®) using the Number Needed to Treat (NNTs), a measure supported by the Evidence Based Medicine approach. The effectiveness results have been combined with Spanish annual costs to assess the economic impact of these treatments. **METHODS:** An event has been defined as non-responder patient according to ACR20 and

ACR50 criteria with each of the drugs compared. NNTs calculated as the inverse of the Absolute Risk Reduction, have been derived using results according to intention-to-treat from a randomised controlled trial (US310) comparing 20 mg daily of leflunomide with 7.15–15 mg weekly of metotrexate, administered during 1 year. Considered annual treatment costs related with the costs of the drug administered the consultations and lab tests performed for routine monitoring, according to the information provided by the manufactures in their summary of product characteristics. Unitary costs have been obtained from Spanish cost databases. **RESULTS:** Using the ACR20 criteria NNTs with leflunomide and metotrexate SC are 4 (95% CI 2.56–7.71) and 5 (95% CI 3.03–14.3) respectively. Using the ACR50 criteria NNTs are 4 (95% CI 2.72–6.54) and 7 (95% CI 4.03–19.3). The annual cost of each treatment per patient-year (drugs and monitoring) equals 1793.3€ in case of leflunomide and 2149.2€ for metotrexate SC. Combining these results the cost of a controlled patient according to ACR20 amounts 7173€ for leflunomide and 10,746€ for metotrexate SC. Results according to ACR50 equals 7173€ and 15044€ respectively. **CONCLUSION:** From the Spanish National Health System perspective and effectiveness measured as respondent according to ACR20 the use of leflunomide for patients with Rheumatoid Arthritis could achieve important cost savings compared with the administration of metotrexate SC. The savings could be even more important when the ACR50 response criteria are considered.

PAR20

ASSOCIATION BETWEEN DOSE CHANGES AND HEALTH CARE COSTS IN RHEUMATOID ARTHRITIS PATIENTS WHO RECEIVED INFLIXIMAB THERAPY

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OBJECTIVES: To explore the relationship between dose changes and costs in rheumatoid arthritis (RA) patients treated with infliximab. **METHODS:** A 5-year retrospective study using the Medstat MarketScan database was conducted. The sample consisted of patients who had a diagnosis of RA (ICD-9 = 714.xx); at least three administrations of infliximab between 1999 and 2005; no history of using anti-tumor necrosis factors for at least 6-month prior to the index infusion, and continuous enrollment for at least 12 months after the index infusion. Per-member-per-month (PMPM) medical and pharmacy costs were compared among three patient cohorts: increase, decrease, and no change in dose between the first and the last doses in the study period. Differences in costs were conducted controlling for age, gender, and a health risk-adjuster score. The cost of adverse events could not be identified separately in this analysis. **RESULTS:** Among 2318 patients included in the study, 685 (29.6%) had decreased their dose, 627 (27.0%) had no change, and 1006 (43.4%) had increased their dose during the study. Average age was 57.2 years. Patients in the no-change group were younger than patients in the other two groups (mean age 55.6 vs. 60.1 and 57.2). Over two-thirds of patients in each group were female. The no-change group had higher PMPM medical and pharmacy costs ($2236.90 and $211.94) compared with the increased dose ($1719.80 and $186.09) and decreased dose groups ($1326.90 and $183.64). The difference in PMPM medical costs was significant after adjusting for age, gender, and risk score. PMPM pharmacy costs were not statistically different. **CONCLUSION:** Patients with no change in dose had the highest medical costs. However there were no significant differences in pharmacy costs. Further research to explore the reasons for the differences in medical costs and the impact of dose changes on clinical and humanistic outcomes is recommended.

PAR21

IMPACT OF ANTI-TUMOR NECROSIS FACTORS ON HEALTH CARE COSTS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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OBJECTIVES: To evaluate the impact of anti-tumor necrosis factor (TNF) therapy on health care costs in rheumatoid arthritis (RA) patients. **METHODS:** Two groups of patients were identified using claims data from Blue Cross Blue Shield health plans: Group A-RA patients who initiated anti-TNF therapy (adalimumab, etanercept or infliximab) between January 1, 2003 and June 30, 2005; Group B-RA patients without anti-TNF therapy. The groups were matched for gender, age and geographic region (3 controls: 1 anti-TNF user). The index date for Group A was defined as the date of first anti-TNF therapy; Group B patients were assigned the index date of their matched case. All patients were continuously enrolled for >=6 months before and >=12 months after the index date. RA-related and total health care expenditures, excluding anti-TNF drug cost, were calculated for the pre- and post-index periods. Multivariate analyses, controlling for potential confounders, were performed to compare per-member-per-month (PMPM) expenditures. **RESULTS:** In total, 9545 RA patients were included (2405 in Group A and 7140 in Group B); 70.5% were female and the average age was 48.0 years. In the pre-index period, Group A had higher RA-related PMPM ($211 versus $32, $p < 0.0001$) and total health care costs ($711 versus $503, $p < 0.0001$) than Group B. Compared with the pre-index period, RA-related PMPM costs (excluding anti-TNF drugs) decreased for Group A by $44 (–20.9%) but increased for Group B by $3 (+9.5%) ($p = 0.0332$) during the post-index period. After adjusting for confounding variables, RA-related cost differences from pre- to post-index period remained between anti-TNF users and controls ($p = 0.0049$). **CONCLUSION:** Although their pre-index RA-related costs were significantly higher, post-index RA-related costs (excluding anti-TNF drug costs) of RA anti-TNF users decreased significantly from pre-index costs compared with RA non-anti-TNF user costs. Additional analyses using clinical and quality-of-life measures are needed to determine the effectiveness of anti-TNF therapies.

PAR22

COST-EFFECTIVENESS OF RITUXIMAB (MABTHERA) COMPARED WITH ABATACEPT (ORENCIA) FOR THE TREATMENT OF MODERATE/SEVERE RHEUMATOID ARTHRITIS (RA) IN THE UNITED KINGDOM

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OBJECTIVES: To evaluate the cost-effectiveness of rituximab compared to abatacept for the treatment of moderate/severe RA patients following the failure of one previous TNF-inhibitor from the perspective of the UK. **METHODS:** A cost-utility approach was adopted, evaluating the total direct NHS costs and QALYs. Baseline patient characteristics were based on the REFLEX phase III trial. A micro-simulation model of 10,000 RA patients estimated lifetime Health Assessment Questionnaire (HAQ) progression, QALYs and direct costs. The starting time-point of the model was upon commencement of treatment with abatacept or